

10/594,735 02/26/2008

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(FILE 'CAPLUS' ENTERED AT 17:40:28 ON 26 FEB 2008)

DEL HIS

L1 617349 S (ALUMINUM OR AL OR CERIU OR CE OR IRON OR FE OR TITANIUM OR
L2 2018 S POLYASPARAGIN? OR POLYASPART?
L3 159987 S ASPART? OR ASPARAGIN?
L4 160906 S L2 OR L3
L5 162 S L1 (L) L4
L6 1973586 S PARTICLE OR NANOPARTIC? OR ULTRAFINE OR NANOMETER OR NM
L7 53 S L5 AND L6
L8 2751531 S SURFACE OR COAT? OF MODIF?
L9 25 S L7 AND L8

=> d ibib abs 3 10 19 20 21 25

L9 ANSWER 3 OF 25 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2007:354965 CAPLUS <<LOGINID::20080226>>

DOCUMENT NUMBER: 146:382772

TITLE: Production of polymer surface-modified
nano-particulate metallic oxides, metal hydroxides,
and/or metal oxide hydroxides

INVENTOR(S): Hibst, Hartmut; Rieger, Jens; Kissel, Jutta; Andre,
Valerie; Mc Kee, Graham Edmund

PATENT ASSIGNEE(S): BASF A.-G., Germany

SOURCE: Ger. Offen., 8pp.

CODEN: GWXXBX

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|-----------------|--|----------|----------------------|----------|
| ----- | --- | ----- | ----- | ----- |
| DE 102005046263 | A1 | 20070329 | DE 2005-102005046263 | 20050927 |
| WO 2007036475 | A1 | 20070405 | WO 2006-EP66569 | 20060921 |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW | | | |
| RW: | AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM | | | |

PRIORITY APPLN. INFO.: DE 2005-102005046263A 20050927

AB The present invention concerns a procedure for the production of
surface-modified nano-particulate metallic oxides, metal
hydroxides and/or metal oxide hydroxides by mixing an aqueous solution of an

Al,
Mg, Ce, Fe, Ti, Zn, or Zr salt with an aqueous solution of a polymer at pH 3-13
and 0-50°, then heating to 60-300° to precipitate the
nanoparticles. In particular, ZnO nanoparticles are
prepared using polyasparaginic acid, polyvinylpyrrolidone or a vinylamide
copolymer. Particles with high porosity and primary

particle sizes in the range of 5-10 nm are obtained.
 The water-resistant nanoparticles may be used as dispersions in
 water or polar organic solns. as well as cosmetic oils without aggregation of
 particles.

L9 ANSWER 10 OF 25 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 2005:1103415 CAPLUS <<LOGINID::20080226>>

DOCUMENT NUMBER: 143:372867

TITLE: Surface-modified metal oxides, methods for
 production by precipitation and use in cosmetic
 preparations as UV-filters

INVENTOR(S): Andre, Valerie; Rieger, Jens; Debus, Heidrun

PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany

SOURCE: PCT Int. Appl., 27 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------------------|--|----------|-----------------------|------------|
| WO 2005094156 | A2 | 20051013 | WO 2005-EP3217 | 20050326 |
| WO 2005094156 | A3 | 20051201 | | |
| W: | AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | |
| RW: | BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | |
| DE 102004016649 | A1 | 20051020 | DE 2004-102004016649 | 20040331 |
| DE 102004020766 | A1 | 20051124 | DE 2004-102004020766 | 20040427 |
| AU 2005227690 | A1 | 20051013 | AU 2005-227690 | 20050326 |
| CA 2558788 | A1 | 20051013 | CA 2005-2558788 | 20050326 |
| EP 1743002 | A2 | 20070117 | EP 2005-716391 | 20050326 |
| R: | AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LI, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR | | | |
| CN 1938387 | A | 20070328 | CN 2005-80010813 | 20050326 |
| BR 2005008721 | A | 20070814 | BR 2005-8721 | 20050326 |
| JP 2007537116 | T | 20071220 | JP 2007-505470 | 20050326 |
| US 2007218019 | A1 | 20070920 | US 2006-594735 | 20060929 |
| IN 2006CN03991 | A | 20070706 | IN 2006-CN3991 | 20061031 |
| PRIORITY APPLN. INFO.: | | | DE 2004-102004016649A | 20040331 |
| | | | DE 2004-102004020766A | 20040427 |
| | | | WO 2005-EP3217 | W 20050326 |

AB The invention relates to surface-modified
 nanoparticulate metal oxides, methods for production and use thereof
 as UV filter in cosmetic prepns. Metal oxide particles are
 modified with polyaspartic acid during the precipitation of the metal
 oxides. Thus zinc nitrate was reacted with sodium hydroxide at
 40°C in the presence of polyaspartic acid; the precipitated
 surface modified zinc oxide was centrifuged,
 dried and included into a sunscreen preparation as a 4.0 weight/weight%
 ingredient.

Further ingredients were (weight/weight%); di-Bu adipate 8.00; C12-C15 alkyl benzoate 8.00; cocoglycerides 12.00; sodium cetearyl sulfate 1.00; lauryl glycoside, Polyglyceryl-2 4.00; cetearyl alc. 2.00; Uvinul T150 3.00; tocopheryl acetate 1.00; glycerin 3.00; allantoin 0.20; Xanthan Gum 0.30; triethanolamine 0.02; water to 100.

L9 ANSWER 19 OF 25 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1995:776251 CAPLUS <<LOGINID::20080226>>

DOCUMENT NUMBER: 123:297996

TITLE: Aspartic acid adsorption onto TiO₂ particles surface. Experimental data and model calculations

AUTHOR(S): Giacomelli, Carla E.; Avena, Marcelo J.; De Pauli, Carlos P.

CORPORATE SOURCE: Facultad de Ciencias Quimicas, Universidad Nacional de Cordoba, Cordoba, Argent.

SOURCE: Langmuir (1995), 11(9), 3483-90
CODEN: LANGD5; ISSN: 0743-7463

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The adsorption of L-aspartic acid (AA) at the TiO₂-KNO₃ aqueous solution interface was studied as a function of pH and electrolyte concentration using direct adsorption, OH⁻ desorption, electrophoresis, and XPS measurements. A multisites surface complexation model was used to describe the charging and adsorptive behavior of the particles. Adsorption and electrophoretic data show that the amino acid uptake is characteristic of adsorbing anions and almost ionic strength independent. Although XPS data indicates that AA interacts with TiO₂ surface sites through the amino groups, neither XPS nor kinetic results give conclusive evidence for the adsorption mechanism (ligand exchange or hydrogen bonding). Model calcns. together with OH⁻ desorption data, however, allow us to conclude that ligand exchange reactions, by which AA forms inner sphere surface complexes, take place. The model also predicts that only terminal (TiOH) groups react with AA. The results exemplify the usefulness of modeling when a quite complete set of exptl. data cannot elucidate the type of reaction taking place between the solute and the surface.

L9 ANSWER 20 OF 25 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1994:466598 CAPLUS <<LOGINID::20080226>>

DOCUMENT NUMBER: 121:66598

TITLE: Polyaspartic acid and its salts for dispersing suspended solids

INVENTOR(S): Koskan, Larry P.; Low, Kim C.

PATENT ASSIGNEE(S): Donlar Corp., USA

SOURCE: U.S., 10 pp. Cont.-in-part of U.S. Ser. No. 927,257, abandoned.

CODEN: USXXAM

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|------------|------|----------|-----------------|----------|
| ----- | ---- | ----- | ----- | ----- |
| US 5284512 | A | 19940208 | US 1993-18008 | 19930216 |
| CA 2156161 | A1 | 19940901 | CA 1994-2156161 | 19940215 |
| WO 9419409 | A1 | 19940901 | WO 1994-US1886 | 19940215 |

W: CA, JP
 RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE
 EP 688347 A1 19951227 EP 1994-909749 19940215
 EP 688347 B1 19991124
 R: DE, FR, GB, IT, NL
 JP 08507100 T 19960730 JP 1994-519224 19940215
 PRIORITY APPLN. INFO.: US 1991-665101 B1 19910306
 US 1992-927257 B2 19920807
 US 1993-18008 A 19930216
 WO 1994-US1886 W 19940215

AB Aqueous suspensions are described in which solid particles are held in suspension by water soluble salts of polyaspartic acid in which ≥ 50 % of the amino acid residue linkages are beta linkages and which have a weight average mol. weight of .apprx.1000-5000. Application is indicated to water

treatment to prevent scale form forming on heat transfer surfaces and in pipes, in laundry and cleaning products to prevent suspended particles such as dirt from re-adhering to cleaned surfaces, in toothpastes and mouth washes as an anti-tartar agent, in paints and coatings to suspend pigments for ease of shipping, mixing and uniform application, and in polymer systems where emulsion droplets need to be suspended. The preparation of an appropriate salt by hydrolysis from polysuccinimides was described in an example.

L9 ANSWER 21 OF 25 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1994:199990 CAPLUS <<LOGINID::20080226>>

DOCUMENT NUMBER: 120:199990

TITLE: Use of polyamino acid analogs of biomineral proteins in dispersion of inorganic particulates important to water treatment

AUTHOR(S): Garriss, John P.; Sikes, C. S.

CORPORATE SOURCE: Mineralization Center, Department of Biological Sciences, University of South Alabama, Mobile, AL, 36688, USA

SOURCE: Colloids and Surfaces, A: Physicochemical and Engineering Aspects (1993), 80(2-3), 103-12
 CODEN: CPEAEH; ISSN: 0927-7757

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Synthetic polyamino acids (peptides), based on the structure and activity of matrix proteins isolated from oyster shell and other biomineral structures, were identified for prevention of mineral scaling. Matrix proteins are polyanionic and are thought to act as regulators of

crystallization

during development of skeletal and other mineral structures. These proteins and their synthetic analogs also contain hydrophobic regions that may enhance their surface-active properties. The dispersion activity of a variety of polyamino acids that are matrix protein analogs was evaluated in bench-top tests using inorg. mineral particles. Dispersion activities were measured using particles of iron oxide, kaolin, CaCO₃, and calcium phosphate (hydroxyapatite). Dispersion activity was measured by increases in the spectrophotometric absorbance of test particle suspensions in the presence of dispersants. Increases in absorbance were due to turbidity resulting from production of smaller particle sizes or slower rates of settling. Results suggested that biopolymers composed of polyanionic polyamino acids may be effective as dispersants. Polyamino acids containing a hydrophobic or phosphorylated domain attached to a polyaspartate backbone demonstrated enhanced activity over

polyaspartate. These polyamino acids display comparable activity to com. available hydrocarbon-based polymeric dispersants. Clearly, non-toxic and biodegradable polyamino acids present a desirable alternative to toxic non-biodegradable polymers in a number of applications such as detergents and cooling tower additives.

L9 ANSWER 25 OF 25 CAPLUS COPYRIGHT 2008 ACS on STN

ACCESSION NUMBER: 1990:445836 CAPLUS <<LOGINID::20080226>>

DOCUMENT NUMBER: 113:45836

TITLE: Coagulation of iron oxide particles in the presence of organic materials. Application of surface chemical model

AUTHOR(S): Liang, Liyuan; Morgan, James J.

CORPORATE SOURCE: W. M. Keck Lab., California Inst. Technol., Pasadena, CA, 91125, USA

SOURCE: ACS Symposium Series (1990), 416 (Chem. Model. Aqueous Syst. 2), 293-308

CODEN: ACSMC8; ISSN: 0097-6156

DOCUMENT TYPE: Journal

LANGUAGE: English

AB An exptl. study on coagulation of colloidal hematite particles in the presence of aqueous organic compds. (phthalic acid, fatty acids, polyaspartic acid, fulvic acids, and humic acids) demonstrated the importance of specific chemical adsorption at the particle surface in controlling oxide particle coagulation rates in natural waters. The Surface Complex Formation/Diffuse Layer Model (SCF/DLM) proved effective in providing quant. description of variations in the interfacial charge and potential resulting from the addition of organic electrolytes to hematite suspensions. The laboratory data on particle coagulation in the presence of fulvic and humic acids is in agreement with the data obtained with naturally-occurring particles and polymeric species. The laboratory measurements of adsorption, electrokinetic mobility and coagulation rates for oxides can be used to understand the mechanisms of particle coagulation and stabilization in modeling of complex geol. systems.